DRAFT
Fort Peck Fish Hatchery Environmental Assessment for the Alternative Water Supply Project

Prepared for

Montana Fish, Wildlife and Parks (FWP)
Design and Construction Bureau
1522 9th Avenue
Helena, MT 59620-0701

Prepared by:

Tetra Tech, Inc.
7 West 6th Avenue, Suite 612
Helena, MT 59601

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Acronyms and Abbreviations

BMP	Best management practice
CFR	Code of Federal Regulations
cfs	Cubic feet per second
CH	Designated Critical Habitat
dBA	A-weighted decibel
DNRC	Montana Department of Natural Resources and Conservation
DEQ	Montana Department of Environmental Quality
EA	Environmental Assessment
EIS	Environmental Impact Statement
EO	Executive Order
FONSI	Finding of No Significant Impact
ft	Foot
FWP	Montana Fish, Wildlife and Parks
gpm	Gallons per minute
HDPE	High-density polyethylene
LE	Listed Endangered
LT	Listed Threatened
MEPA	Montana Environmental Policy Act
MSHA	Mine Safety and Health Administration
MTNHP	Montana Natural Heritage Program
NEPA	National Environmental Policy Act
SCS	Soil Conservation Service
SHPO	Montana State Historic Preservation Office
sq ft	Square foot
USACE	U.S. Army Corps of Engineers
U.S.C.	United States Code
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
%	Percent
°F	Degree Fahrenheit
§	Section

PURPOSE AND NEED FOR ACTION

1.1 INTRODUCTION

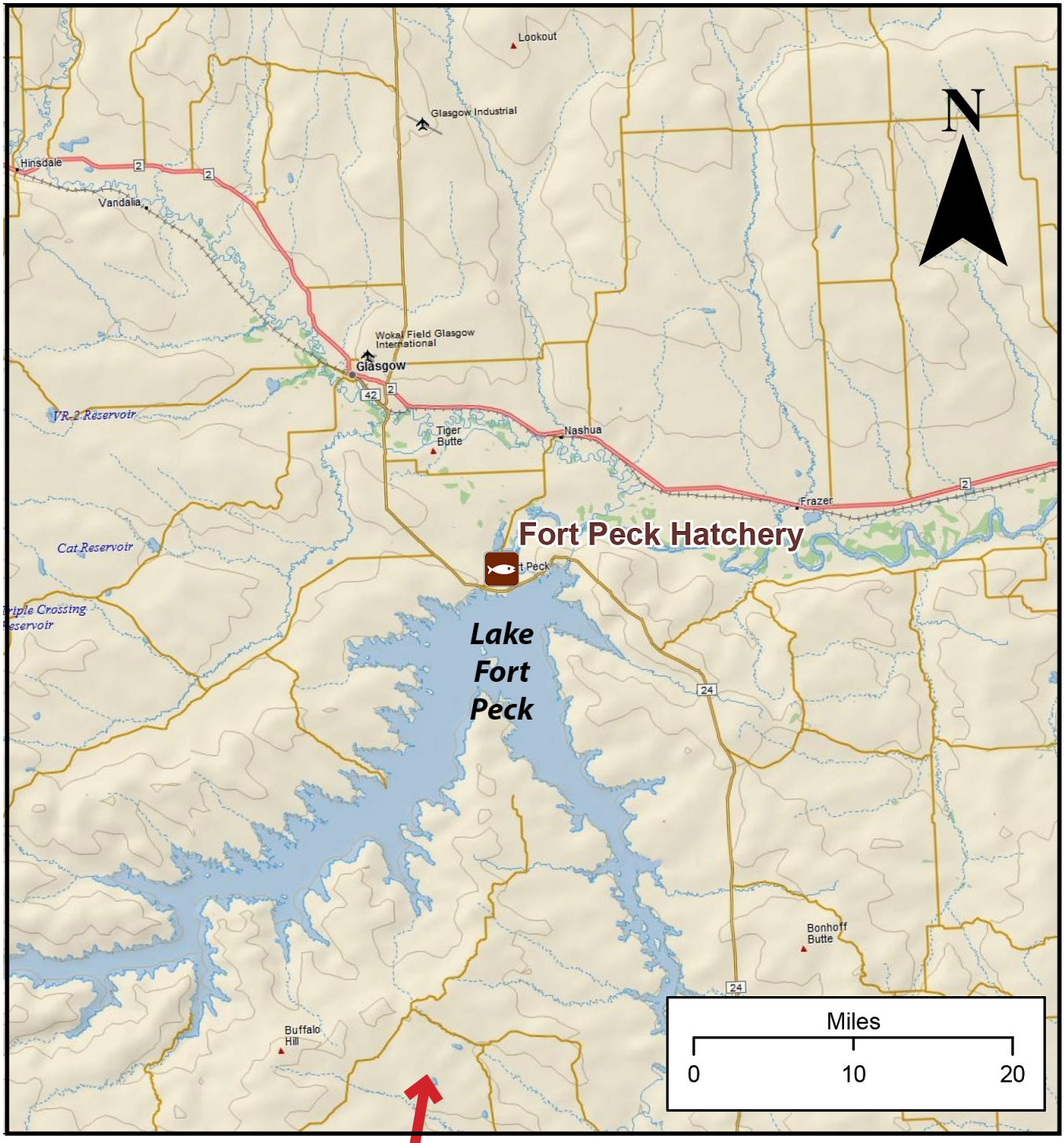
This Environmental Assessment (EA) was prepared in accordance with the National Environmental Policy Act of 1969 (NEPA) (42 United States Code [U.S.C.] 4321) and the Montana Environmental Policy Act (MEPA) (75-1-102-2), Montana Code Annotated. The purpose of this EA is to address potential environmental consequences from a proposed project to provide an alternative water source for the Fort Peck Fish Hatchery. The primary component of the project would be the installation of a pipeline from the Fort Peck Dam powerhouse to the Fort Peck Fish Hatchery along an existing state highway. Water for the hatchery would be diverted from the hydroelectric penstocks through existing drains into a new pipeline to provide gravity-fed reservoir water to the hatchery.

Fort Peck Fish Hatchery opened in 2006 and is used for spawning and rearing a variety of cool- and cold-water fish including walleye, northern pike, Chinook salmon, and rainbow trout. The hatchery facility has 65 indoor rearing tanks and 22 indoor aquariums with an incubation capacity of up to 125 million walleye eggs and 750,000 salmonid species. Forty outdoor ponds are used in the spring and summer for raising fingerling cool-water fish. Eight concrete raceways are used for rearing spring released Chinook salmon and rainbow trout. Fort Peck Hatchery is owned by the U.S. Army Corps of Engineers (USACE), but is staffed and operated by the Montana Fish, Wildlife & Parks (FWP).

1.2 PROJECT LOCATION AND HISTORY

Fort Peck Hatchery is located just downstream of Fort Peck Dam on the Missouri River in northeastern Montana (**Figure 1**). Montana FWP began operating Fort Peck Hatchery to supplement the sport fishing opportunities in Fort Peck Reservoir. Beginning in 1998, sport fishing began to decline in Fort Peck Reservoir and sportsman and fishing groups began lobbying for a hatchery to supplement the sport fish populations in the reservoir. This sport fishery is very important economically to the local communities, which prompted a lobbying effort to build a new hatchery. Because of this lobbying effort, congressional support of the hatchery was received and funding was authorized for the hatchery to be constructed.

Fort Peck dam and powerhouse was constructed and is operated by the Omaha District of the USACE. Due to the federal funding received in the congressional authorization for the project, the USACE was authorized to design and construct the new hatchery. Construction was completed in three phases: Phase 1 included the water intake systems, Phase 2 included the hatchery building and interior plumbing, and Phase 3 included the outdoor rearing ponds.



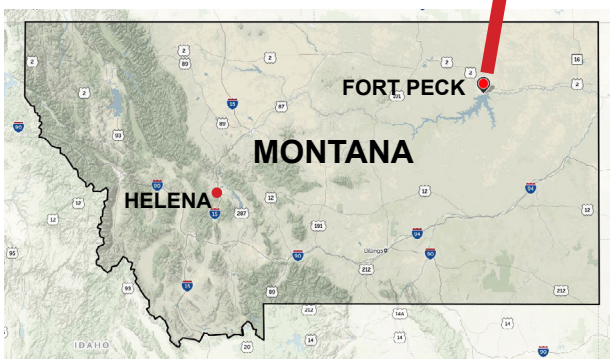


FIGURE 1
Fort Peck Fish Hatchery
Location Map

During the early design discussions for Phase 1, the design team considered tapping into the penstocks leading from the reservoir intake to the hydropower turbines. This source of water would have provided a gravity fed water supply to the hatchery. Due to technical issues, the use of the penstock tap water supply was not considered further in the design process. The alternative to the penstock tap was a gravel bed filter intake system installed in the large pond north of the hatchery building. This system was designed to have an air-burst system to back flush the sediment and plant material that accumulated on the screens. A second intake was constructed to fill the outdoor rearing ponds and consisted of an unprotected tee screen in the pond adjacent to the gravel bed filter intake.

Pumping capacity of the pumps installed in the hatchery is approximately 5,500 gallons per minute (gpm) or 12 cubic feet per second (cfs). Maximum design use for process water inside the hatchery building is approximately 3,600 gpm or 8 cfs. During intake inspections completed between 2011 and 2013, the pumps were only able to deliver approximately 900 gpm, or 2 cfs.

Because of the significant reduction in the volume of water delivered to the hatchery over the past several years, an alternative water supply to provide process water to the hatchery building is needed. After completing several inspections of the existing gravel bed filter intake system, it has been concluded that the intake screens and piping between the screens and pumps is failing quickly. Alternatives identified by FWP staff included repair of the existing gravel bed filter system and the installation of a pipeline from a hydropower penstock tap to the hatchery building.

After the analysis of the gravel bed filter intake screen during the 2011 through 2013 inspections, FWP staff decided not to pursue rebuilding this system because the configuration of the intake allowed sediment to settle in the gravel bed filter. There are no continuous currents in the pond to keep the sediment from settling on the gravel bed filter and to wash away the material removed from the screens during air-burst back flushing.

1.3 PURPOSE AND NEED FOR THE PROPOSED ACTION

1.3.1 Purpose of the Proposed Action

Production levels at the Fort Peck Hatchery are currently limited by the amount of water that can be pumped from the water supply pond into the hatchery. Currently, approximately 900 gpm can be pumped from the water supply pond into the hatchery due to the degraded condition of the intake screens. To return production levels at the hatchery back to the original design levels, approximately 3,600 to 4,000 gpm are required. The purpose of the Proposed Action is to provide a consistent supply of 3,600 to 4,000 gpm of water to the hatchery. This volume of water would be used as process water for all internal hatchery operations.

1.3.2 Need for the Proposed Action

Current condition of the existing gravel bed filter intake system limits the volume of water that can be delivered to the hatchery process water system to approximately 900 gpm. Operation of the Fort Peck Hatchery at the original design levels requires approximately 3,600 to 4,000 gpm. The current intake system only provides approximately 25 percent of the water needed to operate the hatchery at the original design levels.

Several evaluations of the existing gravel bed filter intake were completed between 2011 and 2013. From the inspection reports, several key features illustrate the condition of the existing gravel bed filter intake:

1. The concentrated source of air bubbling out of the intake suggests a complete break of the piping in the gravel bed filter.
2. A blow hole in the bank between the pond edge and the pump station suggests a partial or complete break of the supply line
3. The screens in the gravel bed filter are covered with fine sediments and silts indicating little water movement to keep the screen surface clean.
4. Interior tubes in the heat exchangers are clogged with sediment and silt demonstrating that the existing gravel bed filter intake is not keeping this material out of the process water.
5. Pump tests on the large 5,500 gpm pumps showed less than 1,000 gpm were delivered to the hatchery suggesting the gravel bed filter intake is clogged with sediment and silts.

The existing gravel bed filter intake system is failing and deteriorating quickly and may be very close to complete failure. A water system failure would cause a complete shutdown of the hatchery and the loss of all current production. Due to the economic importance of the hatchery to the local economies, it is imperative that a new water source is identified and constructed.

1.4 DECISION TO BE MADE

Based on the analysis in this EA, the first decision to be made is to determine if an Environmental Impact Statement (EIS) needs to be prepared for the installation of the water pipeline between Fort Peck Dam and Fort Peck Hatchery. This EA was prepared as a decision-making document to provide FWP with sufficient information to determine if the Proposed Action would significantly affect the quality of the human or natural environment. If the EA revealed that significant impacts to the human or natural environment could not be avoided, then the preparation of an EIS would be the next step required under NEPA.

After review and evaluation of the EA, if FWP determines the Proposed Action could be achieved without significantly affecting the quality of the human or natural environment, a Finding of No Significant Impact (FONSI) letter would be prepared. This letter would document the proposed project activities and how the impacts to the human or natural environment would be minimized and therefore comply with the NEPA. After addressing regulatory agency and public comments, FWP and the USACE would decide if the FONSI designation is legally sufficient for a project with this size, scope of work, and contract value.

1.5 ENVIRONMENTAL ASSESSMENT PROCESS

Included in the NEPA and MEPA procedures are specifications that an EA should address only those resource areas that are potentially subject to impacts from the project. The level of analysis completed for each resource area should be commensurate with the anticipated level of environmental impact. The resources areas analyzed in this EA are in Table 1-1.

Resource areas not addressed in this EA because their potential impacts were considered negligible or non-existent are:

- Environmental Justice: The Proposed Action would have no effect on environmental justice. There would be no disproportionately high environmental or health impacts on low-income or minority populations.

Table 1-1: Fort Peck Fish Hatchery Resource Areas Evaluated

Physical Environmental Resources
1. Terrestrial and aquatic life and habitats
2. Water quality, quantity, and distribution
3. Geology and soil quality, stability, and moisture
4. Vegetative cover, quantity, and quality
5. Aesthetics and noise
6. Air quality
7. Unique, endangered, fragile, or limited environmental resources
8. Demands on environmental resources of land, water, air, and energy
9. Historical and archaeological sites

Table 1-1: Fort Peck Fish Hatchery Resource Areas Evaluated (Cont.)

Human Environment Resources
1. Social structures and mores
2. Local and state tax base and tax revenue
3. Agricultural or industrial production
4. Human health
5. Quantity and distribution of community and personal income
6. Access to and quality of recreational and wilderness activities
7. Quantity and distribution of employment
8. Distribution and density of population and housing
9. Demands for government services
10. Industrial and commercial activity
11. Demands for energy
12. Traffic networks and traffic flows

1.6 STRUCTURE OF THIS DOCUMENT

This document was prepared to present all the information required to complete the environmental assessment of the Fort Peck Hatchery pipeline project in a format consistent with the requirements specified in the NEPA and MEPA. Chapter numbers and content in this EA are:

Chapter 1 Provides an introduction, project location and history, and the purpose and need for the proposed new water supply.

Chapter 2 Describes the two alternatives considered for detailed analysis; the No Action and Proposed Action, and summarizes the alternatives considered but not carried forward for detailed analysis.

Chapter 3 Describes the affected environment and analyzes the potential environmental consequences of implementing the Proposed Action or No Action alternative. Direct impacts, irreversible and irretrievable commitment of the resource, and cumulative and secondary impacts associated with the project are evaluated for each resource area.

Chapter 4 Presents the conclusion or recommendation for further environmental analysis

Chapter 5 Provides a list of the EA preparers.

1.7 INTERGOVERNMENTAL COORDINATION

Preparation of an EA requires coordination and consultation with numerous government agencies to identify all applicable laws, rules, regulations, and policies that could apply to the proposed project. Based on the initial concepts to be included in the Proposed Action, a list of the applicable laws, rules, regulations, and policies was prepared and evaluated to meet this requirement. A preliminary list of the applicable laws, rules, regulations, and policies includes, but is not limited to, those in Table 1-2.

Table 1-2: Applicable Laws and Regulations Considered

Title	Citation
Antiquities Act of 1906, as amended	16 U.S.C. §§ 431-433
Archaeological Resources Protection Act (1979, as amended)	16 U.S.C. §§ 470aa-mm and Public Law 96-95
Clean Air Act (1994 and Amendments of 1990)	42 U.S.C. §§ 7401–7671q and Public Law No. 101–549, 104 Stat. 2399
Clean Water Act (1972, as amended)	33 U.S.C. §§ 1251–1387
Comprehensive Environmental Resources, Compensation, and Liability Act (1980)	42 U.S.C. §§ 9601–9675
Endangered Species Act (1973, as amended)	16 U.S.C. §§ 1531–1544
EO 11988 Floodplain Management (1977)	42 Federal Register 26951
EO 11990 Protection of Wetlands (1977)	42 Federal Register 26961
EO 11593 Protection and Enhancement of the Cultural Environment (1971)	36 Federal Register 8921
EO 13186 Responsibilities of Federal Agencies to Protect Migratory Birds and Migratory Bird Treaty Act	66 Federal Register 3853 and 16 U.S.C. §§ 703–712
EO 13112 Invasive Species (2009)	64 Federal Register 2419
Fish and Wildlife Coordination Act (1980)	16 U.S.C. §§ 2901-2912
Migratory Bird Treaty Act (1918)	16 U.S.C. § 703 et. seq.
Montana Water Rights (?)	?
National Environmental Policy Act	42 U.S.C. § 4321 et seq.
National Historic Preservation Act of 1966, as amended (2004)	16 U.S.C. §§ 470–470x-6
Native American Graves Protection and Repatriation Act (1990)	25 U.S.C. §§ 3001 et. seq. and Public Law 101-601
Pollution Prevention Act of 1990	42 U.S.C. §§ 13101–13109
Resource Conservation and Recovery Act (1976)	42 U.S.C. §§ 6901–6992k

Notes:
CFR Code of Federal Regulations
EO Executive Order
U.S.C. United States Code

To ensure identification of all applicable laws, rules, regulations, and policies that could apply to the proposed project, the following state and federal agencies will be consulted on this project:

- Montana State Historic Preservation Office (SHPO)
- Montana Department of Natural Resources and Conservation (DNRC)
- U.S. Fish and Wildlife Service (USFWS)
- U.S. Army Corps of Engineers (USACE)

1.8 PUBLIC PARTICIPATION

A Notice of Availability for the Draft EA will be published in the Glasgow Courier and Helena Independent Record newspapers on July 20, 2016. There will be a 30-day public comment period from July 18, 2016 to August 17, 2016. A public meeting will be held at the Fort Peck State Fish Hatchery Conference Room on August 11, 2016, from 7 PM to 8 PM. The Draft EA will be available to the public at the Glasgow City-County Library (408 3rd Avenue South, Glasgow, MT) and Fort Peck State Fish Hatchery (277 Hwy 117, Fort Peck, MT). Electronic copies of the Draft EA will be available to the public from FWP's website: http://fwp.mt.gov under public notices. You can request a hardcopy by emailing Jason Senn, P.E., at Montana FWP Design and Construction, at jSenn@mt.gov, or by calling (406) 841-4007 or (406) 526-3689. This level of public notice and participation is appropriate for a project of this scope.

Written comments will be accepted until 5:00 p.m., August 17, 2016 and can be mailed to:

Fort Peck Fish Hatchery EA
Jason Senn, P.E., Project Manager
Montana Fish, Wildlife & Parks
P.O. Box 200701
Helena, MT 59620-0701

Email comments may be sent to: jsenn@mt.gov. Please put "EA Comment" in the subject line.

A Notice of Availability for the Final EA and Finding of No Significant Impact (if appropriate) will also be published in the Glasgow Courier and Helena Independent Record newspapers. Printed copies of the Final EA and FONSI (if appropriate) will be made available to the public at the Glasgow City-County Library and Fort Peck State Fish Hatchery. The Final EA will contain an appendix of responses to comments received on the Draft EA.

DESCRIPTION OF ALTERNATIVES

Two alternatives, the No Action and the Proposed Action, will be analyzed in this EA.

2.1 NO ACTION ALTERNATIVE

Included in the No Action Alternative is the continued use of the gravel bed water filter system for the Fort Peck Fish Hatchery. Currently, the existing gravel bed water filter system includes:

- Gravel bed filter currently clogged with silt and sediment,
- Schumasoil high-molecular-weight polyethylene well screens clogged with silt and sediment,
- Connecting lines between well screens and primary supply lines with several ruptured joints, and
- Primary supply lines with several ruptured joints.

Continued use of the gravel bed water filter intake in its current condition will continue to limit the amount of water available for hatchery operations. Conditions that limit the amount of water to the hatchery include: (1) the accumulation of silt and sediment over the gravel bed that limits the volume of water able to seep through the gravel to the intake screens; (2) the broken feeder lines between the intake screens and main supply lines that allow large amounts of silt into the lines; and (3) the broken main supply lines that also allow large amounts of silt into the lines. Over the last several years, the silt accumulated in the screen pipes, the feeder pipes, and the main supply lines have greatly reduced the amount of water that can be pumped from the pond to the hatchery. All the pumps and piping in the pump house are in excellent condition and have many years of service life remaining, but their ability to deliver water to the hatchery is limited by the failing intake screen system. The main supply line from the pump house to the hatchery is also in excellent condition and has many years of service life remaining. Orientation of the pump house with the pond and hatchery building are shown in **Photos 1 and 2**.

Photo 1. Location of the pump house adjacent to the Dredge Cuts pond.

Photo 2. Location of the pump house and hatchery building at the Fort Peck Fish Hatchery.

2.2 PROPOSED ACTION ALTERNATIVE

The Proposed Action alternative includes a new buried pipeline from the Fort Peck Dam powerhouse to the Fort Peck Fish Hatchery (**Figure 2**). Conceptual components of the Proposed Action include:

- Piping from two existing pipe fittings on existing penstock drain lines through the powerhouse foundation and out to the upstream utility vault along the edge of the powerhouse yard (designed and constructed by USACE); approximately 400 linear feet of piping;
- Approximately 2.5 miles of buried 24-inch high-density polyethylene (HDPE) pipe;
- Construction of four utility vaults with shut off valves and drains;
- Piping from existing hatchery supply lines to the downstream utility vault at the southern edge of the hatchery;
- Construction activities associated with the fusing of the pipe, excavation of the trench, installation of the pipe, backfill of the pipe trench and restoration of the pipeline corridor; and
- Staging areas developed for material and equipment storage and preparation during construction.

Hatchery process water would come from the two powerhouse penstocks through existing penstock drains and flow through the existing piping system to a location where an existing valve and pipe tee fitting are located. At each penstock drain, the hatchery process water pipeline would be bolted to the fitting. New valves and fittings would be installed near the existing valves and pipe fittings to provide the USACE flexibility for future piping projects associated with the penstock drains. Once the pipeline leaves the valves and fittings, the pipe alignment from both penstock drains would consist of vertical and horizontal sections with 90- and 45-degree fittings to position the pipelines near the west wall and ceiling of the penstock access gallery. At this point, the pipelines would be joined into a single pipeline to penetrate the concrete wall. Location of the two pipelines merging into a single pipeline would be at the most feasible site along both pipeline alignments. After the single pipeline penetrated the concrete wall, it would continue west under the existing parking lot and lawn to the project site perimeter fence. Just outside the perimeter fence, an underground utility vault with a main pipeline valve, drain fittings and drain valves would be installed. Location of the upstream underground utility vault would be near the right edge of **Photo 3** adjacent to the project site landscaping.

LEGEND

- Water Supply Pipeline (FWP Design and Management)
- Water Supply Pipeline (USACE Design and Management)
- Valve Station

750' 0 750'

SCALE: 1" = 750 feet

FIGURE 2
Fort Peck Fish Hatchery
Proposed Pipeline Route

Photo 3. Overview of the upstream end of the proposed pipeline from the Fort Peck Dam Powerhouse to the Fort Peck Fish Hatchery.

Photo 4. Western view down Yellowstone Road showing the proposed pipeline alignment along the right edge (north side) of the Road.

The new pipeline alignment would be along the north edge of Yellowstone Road (**Photo 4**). An existing pipeline supplying water to the community of Fort Peck is also located along the north edge of Yellowstone Road so the proposed pipeline alignment would need to be installed to prevent any future conflicts between the pipelines. Installing the pipeline on the south side of Yellowstone Road would not be allowed as this area is part of the monitoring area for the downstream toe of Fort Peck Dam. The Fort Peck Interpretive Center is about ½ mile southwest of the Dam. Infrastructure associated with the Interpretive Center including water lines, sewer lines, underground power lines, phone lines and sprinkler lines would need to be identified to prevent any conflicts with the new pipeline.

Photo 5. Northwest curve in Yellowstone Road where the mid-point utility vault would be located.

As Yellowstone Road curves to the northwest near the western edge of the Dam, an underground utility vault would be installed with a main pipeline shut off valve, drain fittings and drain valves. Length of the pipeline between the utility vault at the powerhouse and the utility vault at the northwest curve would be approximately 4,000 feet. An approximate location of the northwest curve utility vault is shown in **Photo 5.**

Just past the mid-point utility vault, Yellowstone Road continues to make a long sweeping curve until it intersects with Teton Road that heads west to the Fort Peck town site. Alignment of the pipeline would remain on the north/northeast side of Yellowstone Road. No buildings or other infrastructure are next to Yellowstone Road in this section. A view of the proposed pipeline alignment from the junction of Yellowstone Road and Judith Road, looking south toward Teton Road is shown in **Photo 6.**

Photo 6. Pipeline alignment along Yellowstone Road looking south to Teton Road.

North of the junction with New Deal Road and Judith Road, the downstream utility vault would be installed on the east side of the roadway. Between New Deal Road and the hatchery, several businesses and buildings, and associated infrastructure, are on the east side of the road. To minimize any conflicts with these businesses and the infrastructure, the pipeline would cross under Judith Road to the west side of the roadway at the downstream utility vault. Alignment of pipeline along the west side of Judith Road is shown in **Photo 7**.

Photo 7. Pipeline alignment along Judith Road looking north from New Deal Road.

The last section of the pipeline route would parallel Judith Road and would be installed between the roadway and the fence surrounding the hatchery's outdoor rearing ponds (**Photo 7**). Once onto the hatchery property, the pipeline alignment would make two long radius bends and terminate at the back of the main hatchery building. The final utility vault would be placed near where the current hatchery water supply pipeline enters the building. A tee and two valves would be installed in the utility vault with one outlet, valve, and pipe connecting with the hatchery supply line and the other outlet, valve, and pipe connecting to the Dredge Cuts pond as a drain. The approximate location of the pipeline connection into the hatchery supply line is shown in **Photo 8**.

Photo 8. Approximate location of pipeline connection with hatchery water supply.

2.3 ALTERNATIVES CONSIDERED BUT DISMISSED

During the development of alternatives for the upgraded water supply system for the Fort Peck Fish Hatchery, several other alternatives were identified but not considered feasible for the project. A brief description of these alternatives and the operational features that prevented them from being included in the detailed analysis is below.

2.3.1 Penstock Taps

Installation of a tap on each of the powerhouse penstocks would involve cutting a hole in the existing steel penstock and welding a section of pipe onto the penstock. On the end of the pipe not welded to the penstock, a flange would be welded to the pipe to install additional sections of pipe. In a location with easy access and close to the welded penstock tap, a valve would be installed to control the flow into the new supply pipeline. Once the pipeline leaves the control valve, the pipe alignment from both penstock taps would consist of vertical and horizontal sections with 90- and 45-degree fittings to position the pipelines near the west wall and ceiling of the penstock access gallery. At this point, the pipelines would be joined into a single pipeline to penetrate the concrete wall. Location of the two pipelines merging into a single pipeline would be at the most feasible site along both pipeline alignments. After the single pipeline penetrated the concrete wall, it would continue west under the existing parking lot and lawn to the project site perimeter fence.

One of the primary purposes of the Fort Peck Dam is to supply electricity to the federal power grid for the intermountain region. Similar to most other hydroelectric generating plants, the Fort Peck turbines and generators are on a maintenance schedule to replace or rebuild turbine runners and generators. This schedule is planned several years in advance to maintain a steady production of power from the facility. Installation of the penstock taps on the powerhouse penstocks would have to be coordinated with the maintenance schedule for the hydroelectric generating plant to install the taps when the penstocks are empty during turbine or generator maintenance. While the installation of one tap can be coordinated with the current maintenance activities, the installation of the second tap may not occur for several years when maintenance activities are scheduled for the generating units on the second penstock.

Another construction issue that must be considered is the installation specifications required by the USACE for work on the powerhouse penstocks. All work on these facilities must meet very rigid specifications to ensure public safety and this level of work takes time to develop the design drawings and specifications. Implementation of the work is not complex but would require meticulous craftsmanship to meet the USACE standards.

Due to the timing involved with the planning and implementation of this alternative, this alternative was not considered further.

2.3.2 Stationary Vertical Intake Screens with Programmed Air-burst Back Flush System

Using water from the Dredge Cuts pond would require the new intake to collect water from the upper layers of the water column to minimize the sediment and slit impacts on the screens. The vertical screen intake would have to be constructed in 8 to 10 feet of water with the screen panels in the upper 6 feet of water. Water levels in the Dredge Cuts pond vary throughout the year. To meet current fish screening criteria for an actively cleaned screen system, the screen area required to meet the 0.4 feet per second approach velocity for pumping 12 cfs would equal 30 to 36 square feet (sq ft). Four screen panels 4 feet (ft) wide by 4 ft tall would be installed in a concrete intake structure constructed in the pond directly in front of the existing pump house. These screens would provide approximately double the screen area required but would also provide redundancy if maintenance was required on one of the screens. One or two pipelines would be installed from the intake structure to the existing pump sump to supply water to the pumps. An integral part of the intake would be the use of an air-burst system to clean any material that collected on the surface of the intake screens. This system could be programmed to operate when water levels in the pump sump drop below a certain level or operate at specific intervals during each day. In addition to the water supply lines leading from the intake to the pump house, air lines would also need to be installed between the pump house and the intake structure to operate the air-burst system. A walkway between the intake structure and the bank would have to be installed to provide daily access to the intake structure for maintenance.

While the size of the proposed intake structure and the amount of screen area appears reasonable, the location of the structure in the pond and the distance from the shoreline is a major factor in the viability of this alternative. These types of structures are typically installed along the edge of a river or bank where the structure is built in the active channel but the entire structure extends all the way back into the bank. At the Fort Peck Hatchery, the slope of the pond bottom immediately in front of the pump house appears to be gradual requiring the intake structure to be located in the pond away from the shore. The actual distance from the shore would be determined by the distance from the bank that the water depth becomes greater than the 10 or 12 feet required for the intake. Daily maintenance checks are mandatory for these structures and the potential 100-foot long or longer walkway from the bank to the intake structure would be very expensive. In addition to the long walkway is the silt and sedimentation problem that currently affects the existing gravel bed filtration system. Due to the water currents in the pond and the location of the intake, the location of any intake in this area of the pond would be impacted by the silt and sediment in the water. Due to the location of the intake structure out in the pond, access to the intake structure and the silt and sediment in the pond water at this location, this alternative was not considered further.

2.3.3 Floating Intake Platform with Cone Screens

Similar to the stationary vertical intake screens, a floating intake would need to withdraw water from the upper layers of the water column to minimize the sediment and slit impacts on the screens. To accomplish this, the proposed intake would be mounted on a set of floats that would keep the cone screens in the upper portion of the water column. Two parallel rows of cone screens would supply water to the supply line leading into the pump house. These screens would be actively cleaned with a brush system that would be designed to operate whenever the water level in the pump bay dropped below a certain level. Cleaning of the screen surface would restore the screen opening to allow the free flow of water into the pump bay. In addition to the active brush cleaning of the screen surface, a flushing system around the screens would have to be designed to move the material brushed off the screen surface away from the screen so that it would not be sucked back onto the screen surface. The floating screen platform would be restrained by pilings driven into the bottom of the pond that would allow the platform to move with the changing water level. A series of pilings would also be installed along the supply line route to support a maintenance walkway to the platform and to anchor the supply line. One issue that would have a large impact on the operation of the cone screen intake is the length of time the pond is covered with ice. Ice would restrict the vertical movement of the platform so the depth of the screens would have to be designed to remain in the water column during all combinations of ice level and pond water levels.

In recent years, cone screens have become very popular for water intakes to rearing ponds, acclimation ponds, and fish hatcheries due to their simple design and efficient brush cleaning system. One of the site features that allows a cone screen to operate efficiently is the removal of the material brushed off the screen surface away from the screen by the water flowing in the stream channel. In the Dredge Cuts pond, there are no currents to move the sediment away from the screen so the material would most likely be sucked back onto the screen during pumping. Screening capacity of cones screens are large enough that two or three cone screens would be required for the 12 cfs pumping need. Installing these screens on a concrete base along the edge of a stream channel is common practice but installing them on a floating platform to keep them above the silt and sediment would be unique. This unique installation application along with the infrastructure required to retain the intake in place and provide daily access would be very challenging. Due to the location of the floating intake structure in the pond, the complex infrastructure required to provide access to the intake structure, the unknown impacts of ice on the platform and the screens and the silt and sediment in the pond water at this location, this alternative was not considered further.

2.3.4 Modification of Existing Intake

One of the primary operational deficiencies of the existing intake is the silt and sediment infill of the gravel bed that severely restricts the flow of water to the buried

well screens. To eliminate this problem, a new set of screens, supported by pilings, would be installed above the gravel bed to place the screens in the upper layers of the water column to minimize the sediment and slit impacts on the screens. Vertical location of this set of screens would also have to account for the annual ice depth on the pond to ensure that water could be pumped during winter. Configuration of the screens would be two rows of four tee screens with the main supply line buried in the bottom of the pond and a vertical section of pipe connecting the screen to the main supply line. An integral part of the intake would be the use of an airburst system to clean any material that collected on the surface of the intake tee screens. This system could be programmed to operate when water levels in the pump sump drop below a certain level or operate at specific intervals during each day. In addition to the main water supply lines leading from the intake screens to the pump house, air lines would need to be installed between the pump house and the intake structure to operate the airburst system. Installation of the two parallel screen intakes would provide a backup system if one of the screens needs maintenance.

While the installation of the tee-screen systems appears to address several of the issues impacting the existing intake (i.e., silt and sediment on the pond bottom, removal of silt and algal growth from the screen surface with the air-burst system, and a heavy duty piping system from the screens to the pump sump), the screen system cannot change the physical conditions in the Dredge Cuts pond. The primary conditions in the pond that impact the operation of the intake screens are the continuous presence of the high silt and sediment load and the lack of any circulation currents in the pond to move the silt and plant growth material away from the screen surface once it is cleaned off with the air-burst system. These conditions make the modification of the existing intake or construction of a new intake in the Dredge Cuts pond a poor alternative for the Fort Peck Fish Hatchery water supply, so this alternative was not considered further

2.4 ALTERNATIVES FOR ANALYSIS

Two alternatives, the No Action and the Proposed Action, are analyzed in this EA. A summary of the major components in these alternatives is shown in Table 2-1.

Table 2-1: Major Components of the Alternatives Selected for Evaluation

Alternative	Action
No Action Alternative	FWP would continue to use the gravel bed water filter intake system until it fails completely. Due to the reduced volume of water being pumped to the hatchery from the existing gravel bed filter, hatchery operations would continue to be reduced as the volume of pumped water decreases.
Proposed Action Alternative	FWP and USACE would construct a pipeline from two existing penstock drains to the Fort Peck Fish Hatchery to provide gravity-fed reservoir water to the hatchery for use during annual operations. Up to approximately 9 cfs (4,500 gpm) would be supplied to the hatchery through the existing penstock drains and new pipeline.

Notes:
FWP Montana Fish, Wildlife & Parks
USACE U.S. Army Corps of Engineers
cfs Cubic feet per second
gpm Gallons per minute

2.4.1 No Action Alternative: Water from Gravel Bed Filter Intake System in Dredge Cuts pond

Under the No Action Alternative, future operations of the Fort Peck Fish Hatchery would be similar to the current operations. Due to the reduced volume of water that can be pumped into the hatchery through the existing gravel bed intake, the hatchery is operating at less than full capacity. As the condition of the gravel bed water filter intake continues to deteriorate, the hatchery operation capacity would continue to decrease. It is likely that within a few years, all water pumped into the hatchery would be unscreened after the existing screen intake completely fails.

2.4.2 Proposed Action Alternative: Gravity-fed Reservoir Water from Fort Peck Dam Penstock Drains

Under the Proposed Action Alternative, future operations of the Fort Peck Fish Hatchery would be significantly different than the current operations. Approximately 3,600 to 4,000 gpm of water would be delivered to the hatchery through the new pipeline, allowing the hatchery to operate at its designed operational capacity. The original designed volume of water required in the hatchery when all systems are running at full capacity was 3,600 gpm, based on USACE design drawings. Since hatchery operations began in 2006, the operational water volumes have been 2,500 to 4,000 gpm.

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This section addresses the potential impacts to nine physical environment resource areas for the proposed Fort Peck Fish Hatchery water supply pipeline project. For each resource there is a brief description of the existing environment for that resource, potential impacts from construction and implementation, mitigations that may lessen impacts, any irreversible and irretrievable commitment of the resource, and the cumulative and secondary impacts for the project. Table 3.1 has a summary of the potential impact rating for each physical environment resource area.

3.1 TERRESTRIAL AND AQUATIC LIFE AND HABITATS

Existing Environment: The general area around Fort Peck provides multiple habitats for terrestrial and aquatic use, particularly for many types of shore birds, deer, fish, and small mammals. Alignment of the proposed Fish Hatchery water supply pipeline route crosses open areas but also touches or is adjacent to areas associated with the dam and powerhouse, Downstream Campground and Recreational Area, residential and commercial use areas, and other developed and undeveloped areas. Conceptual layout of the pipeline route would parallel the well-used Yellowstone Road for most of the distance between the dam and hatchery building. At the upstream end, the pipeline would run along the southern edge of the Fort Peck Downstream Campground and Recreation Area. Because the existing environment along the proposed pipeline route might be used by several species of concern, the USFWS's Endangered, Threatened, Proposed and Candidate Species list (April 2016) was reviewed for occurrences in Valley County. After this review, six species were identified as occurring in the project area and are listed in Table 3-2. There are four avian species, one fish species, and one small mammal species.

Potential Impacts: Impacts to terrestrial wildlife and avian resources would be minor and only occur during construction when there could be some displacement to small mammals and birds from the excavation, trenching, and backfilling. Trees and water bodies, including the Missouri River in the Downstream Recreation Area, provide valuable habitat for many terrestrial and aquatic species in the project area. A field inspection and survey by a trained and experienced biologist would be completed by FWP prior to any construction to identify potential use of the area habitats by endangered, threatened, proposed, and candidate species.

Table 3-1: Potential Impact to Physical Environment Resource Areas

Resource Area	Major	Moderate	Minor	None	Description
1. Terrestrial and aquatic life and habitats			X		The Proposed Action (during construction) could affect jurisdictional waters. The No Action Alternative could impact the rearing and production of fish for stocking Montana waters over the long-term.
2. Water quality, quantity and distribution			X		The Proposed Action (during construction) and the No Action Alternative could degrade storm water quality.
3. Geology and soil quality, stability and moisture			X		The Proposed Action (during construction) could result in increased erosion.
4. Vegetative cover, quantity and quality			X		The Proposed Action (during construction) would result in disturbance to vegetation in the pipeline route.
5. Aesthetics			X		Noise levels could increase temporarily during construction for workers, residents, and recreational users at Fort Peck.
6. Air quality			X		Air pollution emissions could increase for the Proposed Action (during construction).
7. Unique, endangered, fragile, or limited environmental resources				X	The Proposed Action (during construction) could affect jurisdictional waters. The No Action Alternative could impact the rearing and production of fish for stocking Montana waters over the long-term.
8. Demands on environmental resources of land, water, air, and energy			X		Approximately 9 cfs of water would be diverted from power generation (< 0.1 % of flow). Gravity-fed water at a relatively constant temperature would eliminate the electrical costs for pumping water from the Dredge Cuts for the hatchery building and raceways, save some water heating costs, and overall save money. A dedicated right-of-way would be needed for the pipeline route.
9. Historical and archaeological sites			X		The Proposed Action (during construction) could affect historic or sacred sites.

Notes:

cfs Cubic feet per second

< Less than

% Percent

Table 3-2: Endangered, Threatened, Proposed and Candidate Species (April 2016)

Scientific Name	Common Name	Status[1]
Scaphirhynchus albus	Pallid Sturgeon	LE
Charadrius melodus	Piping Plover	LT, CH
Mustela nigripes	Black-footed Ferret	LE
Sterna antillarum athalassos	Interior Least Tern	LE
Grus americana	Whooping Crane	LE
Calidris canutus rufa	Red Knot	LT

[1] Status Category:

CH = Designated Critical Habitat LT = Listed Threatened LE = Listed Endangered

Mitigation Measures:

- Conduct terrestrial wildlife and avian surveys in the project area to determine potential use by any endangered, threatened, proposed, and candidate species.
- Consult with FWP specifically to address any potential impacts to aquatic species and complete any necessary monitoring or mitigation measures.
- Reclaim all disturbed areas according to the final grading, reclamation, and revegetation plans, as soon as construction is done.

Irreversible and Irretrievable Commitments of Resources: No irreversible or irretrievable impacts on terrestrial wildlife, avian, or aquatic resources are anticipated as a result of this project.

Cumulative Impacts: The project would not contribute to cumulative impacts to terrestrial wildlife, avian, or aquatic resources in the area.

3.1.1 Water Quality, Quantity, and Distribution

Existing Environment: Along the entire length of the proposed pipeline, a trench would be excavated approximately 6 to 8 feet deep. In most areas, the trench would be dug in areas that have shallow groundwater and in some areas be near manmade water bodies. After installation and backfill, the trench would be properly compacted, graded and revegetated to prevent the collection and accumulation of surface water that could cause local soil erosion and transport of sediments off the disturbed areas. Fort Peck Dam has a system of seepage collection drains that merge and flow through a short surface water outlet known as Duck Creek. Duck Creek is a manmade, approximately 1,500 feet long, meandering channel that begins at the toe of the Dam and flows into the Missouri River northwest of the Fort Peck Interpretive Center. A second surface water outlet is a half-mile long by 250-feet wide former dredge cut just north of the Fort Peck Downstream Campground. The proposed pipeline route would cross Duck Creek near

its southern beginning point. It would be located west of the water-filled dredge cut trench along its entire length. Directional drilling could be used to bore under Duck Creek, or the pipeline could be placed across Duck Creek near the area where it passes under Yellowstone Road. Channel gradient in Duck Creek is very flat so there is little chance that Duck Creek could downcut and ever expose or damage the buried pipeline.

A second consideration of water resources impacts is to evaluate the withdrawal of water from the Missouri River for use at the Fish Hatchery. Pipeline capacity from the Powerhouse to the Hatchery would be designed for a flow rate of approximately 4,000 gpm, or about 9 cfs. Flows in the Missouri River are variable but have historically been between 3,000 and 35,000 cfs. The proposed water withdrawal would be less than 0.3 percent of the lowest range of Missouri River flow and much less during the higher ranges of flow. In addition, much of the water for the Fish Hatchery would flow through the hatchery and would not be lost or consumed. Return flows from the Hatchery would discharge to the Dredge Cuts with an outlet that flows back into the Missouri River near Park Grove.

Potential Impacts: Potential impacts to water resources from the proposed pipeline construction would be minor sedimentation to Duck Creek from surface water erosion along the exposed, compacted backfill and deposition in Duck Creek. If the pipeline trench disturbance is not properly backfilled, compacted, and graded, allowing surface water to congregate and create rills or small channels, the eroded sediments could be deposited in minor amounts in Duck Creek. Erosion control measures could easily be implemented to divert flows away from the pipeline trench area and help stabilize the soils until the disturbed areas are adequately revegetated.

Currently, the Fish Hatchery withdraws the hatchery process water and returns the unconsumed portion to the Dredge Cuts Pond that becomes part of the Missouri River flow. The volume of water withdrawn, used, and returned to the Missouri River system would remain at less than the maximum hatchery design flow (approximately 3,600 gpm), but point of withdrawal would change. The relatively small volume of water lost or consumed by the Fish Hatchery would be slightly more if the hatchery operates at a higher capacity.

Mitigation Measures:

- Complete good engineering design specifications for the backfilling, compaction, and grading plan that incorporates best management practices for stormwater management and potential surface water erosion.
- Include clay or reduced hydraulic conductivity blocks in sloping sections of the pipeline trench to minimize preferential groundwater flow pathways in the trench backfill.
- Grade and revegetate the pipeline trench disturbance areas promptly after construction.

- Locate equipment storage areas, material laydown areas, and fuel storage areas at least 100 feet from any surface water body.
- Install storm water best management practices (BMP) during all phases of the project.

Irreversible and Irretrievable Commitments of Resources: Consumptive use of water for Fish Hatchery operations would continue as long as the hatchery is operating.

Cumulative Impacts: Water use by the Fort Peck townsite, the USACE operations, and recreational users at Fort Peck would not likely have an adverse impact on any water resources in the area. The amount of water used and consumed by the Fish Hatchery would not change, only the point of withdrawal.

3.1.2 Geology and Soil Quality, Stability, and Moisture

Existing Environment: Along the entire length of the proposed pipeline, a trench would be excavated approximately 6 to 8 feet deep to install the pipeline. It is anticipated that the bedrock is deep along the pipeline alignment and the materials excavated would be alluvium on flood plains and low river terraces. The soil mapped for the Valley County portion of the project is the Havre silty clay loam (USDA- Soil Conservation Service [SCS] 1984). Havre silty clay loam typically has a 5-inch, dark brown, topsoil layer that overlies light brownish gray silty clay loam and loam parent material to depths of 65 inches or more. Havre silty clay loam soil type has a moderate susceptibility to wind erosion but only a slight susceptibility to water erosion. This soil type is well suited to growing many agricultural crops and it should be readily amenable for reseeding with native grasses after construction. There may be a few areas where directional drilling rather than trenching would be used to emplace the pipeline. Directional drilling may encounter clay shale or sandstone bedrock.

Potential Impacts: Excavation of the pipeline trench would result in minor loss of soil development and horizons, some disruption to physical, hydraulic, and chemical properties in the soil profile, and temporary changes to soil nutrient levels. If soil materials from the trench excavation were segregated into two or three different stockpiles and replaced in the order they were removed, the impacts to soils would be temporary and very minor. In particular, salvaging the upper 6 to 8 inches of topsoil separate from the subsoil materials and replacing it after the trench is backfilled would help retain most of the valuable properties of that soil resource. Compared to the lower subsoil and parent materials, the upper topsoil layer has the highest organic matter content, the highest plant-available nutrients, and a seed bank of native seeds that would all help with revegetation. Excavating and backfilling the soils when wet would cause additional breakdown and loss of soil aggregation and structure. Compaction of wet soils produces a very dense soil layer that is detrimental to soil water movement and reduces plant root growth. Excavated soils should be returned to the trench and revegetated at the earliest stage possible.

Mitigation Measures:

- Don't handle soils when they are excessively wet.
- Prepare an excavation, installation, backfill, compaction and grading plan that includes segregating the pipeline trench excavated soils into 3 successive stockpiles for replacement in the same order they were removed.
- Avoid driving heavy, rubber-tired equipment on top of stockpiled soils or compacted and graded trench soils.
- Backfill the pipe trench, apply topsoil, and revegetate the disturbed areas promptly after finishing construction.

Irreversible and Irretrievable Commitments of Resources: Some subsoil and topsoil could be lost to wind or water erosion during handling or while stockpiled. Surface topography of the trench after backfilling and reseeding should match the surrounding area.

Cumulative Impacts: Other than the proposed action, no other major construction projects involving disturbances to geology and soils are planned for the Fort Peck Dam area.

3.1.3 Vegetation Cover, Quantity, and Quality

Existing Environment: Construction of the water supply pipeline from the Fort Peck Dam to the Fish Hatchery would disturb a linear area along the pipeline route that currently supports a mixture of native and introduced grasses, shrubs, and trees. Some wetland areas have developed along Duck Creek, but these areas could be avoided by either directional drilling under Duck Creek, or staying above the Creek as it passes under Yellowstone Road. Native grasses in the upland areas would include Western wheatgrass (*Pascopyrum smithii*), Green needlegrass (*Nassella viridula*), Bluebunch wheatgrass (*Pseudoroegneria spicata*), and Blue grama (*Bouteloua gracilis*). Shrubs would include Big sagebrush (*Artemisia tridentata*), Broom snakeweed (*Xanthocephalum sarothrae*), Pricklypear cactus (*Opuntia ployacantha*), wild roses (*Rosa spp.*), snowberry (*Symphoricarpos albus*), willows (*Salix spp.*), and cottonwoods (*Populus spp.*). Wetland vegetation would likely include sedges (*Carex spp.*), rushes (*Juncus spp.*), cattails (*Typha spp.*), and willows (*Salix spp.*).

The Montana Natural Heritage Program (MTNHP) website was reviewed to identify plant species of concern that are rare, threatened, or have declining populations and are at risk of extirpation in Montana. Plant species of concern listed in Table 3-3 have verified occurrences in Valley County. Two of the five plant species (Scarlet ammannia and Chaffweed) are associated with wetland habitats and, could occur along the banks of Duck Creek. Two other species (Hot Spring Phacelia and Platte cinquefoil) are not likely to occur in the pipeline project area because their preferred habitats are not found nearby (barren clay slopes for Hot Spring Phacelia or mesic grasslands for Platte cinquefoil). Bractless blazingstar prefers open areas with sandy or gravelly soils and

could be found along the pipeline route. Prior to actual construction, the entire pipeline route would be inspected by an experienced plant botanist or biologist familiar with habitat types and plant species identification for the species in Table 3-3.

Potential Impacts: Excavation and trenching activities would result in removal of vegetation from up to 15 acres along the linear route (50-foot wide corridor). Impacts to vegetation would be temporary and minor if appropriate soil salvage, backfilling, compaction, grading, and revegetation with an approved seed mixture are implemented. Similar vegetative cover should be established in 2 to 3 years. A site-specific reclamation and weed control plan should include measures to revegetate the disturbed area and prevent the spread of noxious weeds after construction.

Additional information is needed to determine if the pipeline could be sited next to the Yellowstone Road and above the manmade Duck Creek channel to avoid the wetland areas along Duck Creek. If siting the pipeline above the channel would not be possible, the potential to directionally drill under the channel would be evaluated. If neither of these two siting options were practicable or implementable, then the pipeline trench would need to cross the channel and small wetland areas on both banks would be impacted. Impacts to these wetland areas could be minimized by careful trenching, soil storage, pipe installation, backfill, compaction, and other practices to minimize the disturbance.

Mitigation Measures:

- Prepare an excavation and reclamation plan that includes segregating the topsoil and trench soils and replacing them in the order they were removed.
- Determine feasible options for avoiding small wetland areas on the banks of Duck Creek.
- Develop a site-specific seed mixture of native grasses and forbs for revegetating the pipeline disturbance.
- Develop a wetland seed mix, if needed, to reseed wetland areas.
- Reclaim all disturbed areas according to the excavation and reclamation plan, as soon as construction is done.
- Monitor the newly reclaimed areas for weeds for 3 years and control weeds according to the weed control plan.

Table 3-3: Montana Species of Concern

SCIENTIFIC NAME COMMON NAME TAXA SORT	FAMILY (SCIENTIFIC) FAMILY (COMMON)	GLOBAL RANK	STATE RANK	USFWS	USFS	BLM	MNPS THREAT CATEGORY	HABITAT
Ammannia robusta	***Lythraceae***	G5	S2					Wetland/Riparian
Scarlet Ammannia	Loosestrife Family	**Species Occurrences verified in these Counties:** Phillips, Valley, and Yellowstone. **State Rank Reason:** Known from a few extant populations and a historical collection in northeastern Montana. Likely occurs in additional wetlands in Montana east of the Continental Divide, though many of these would be on private lands and are unlikely to be surveyed for its presence.						
Centunculus minimus	***Myrsinaceae***	G5	S2					Wetland/Riparian
Chaffweed	Myrsine Family	**Species Occurrences verified in these Counties:** Lake, Missoula, Phillips, Powell, Ravalli, Sheridan, and Valley. **State Rank Reason:** Known from scattered locations across the state, though it is rare to uncommon in Montana. May be susceptible to some adverse impacts from human-caused disturbance due to its preference for vernally moist habitats in valley locations.						
Mentzelia nuda	***Loasaceae***	G5	S1S2					Open areas (sandy or gravelly soils)
Bractless blazingstar	Blazingstar / Stickleaf Family	**Species Occurrences verified in these Counties:** Custer, Powder River, Roosevelt, Rosebud, Valley **State Rank Reason:** Rare and peripheral in Montana, where it is known from a few locations in the eastern half of the state. Additional data on population levels and trends are needed.						
Phacelia thermalis	***Hydrophyllaceae***	G3G4	S1S3					Barren clay slopes
Hot Spring Phacelia	Waterleaf Family	**Species Occurrences verified in these Counties:** Fergus, Garfield, Phillips, and Valley. **State Rank Reason:** Hot spring phacelia is known from a very small number of sites in northeastern Montana, where it is disjunct from its primary range (northern California to southwestern Idaho). The species is an annual and may be vulnerable to competition from invasive exotics, particularly sweet clover, which is widespread in the type of habitat where hot spring phacelia has been found.						
Potentilla plattensis	***Rosaceae***	G4	S3				4	Grasslands/Sagebrush (Mesic)
Platte Cinquefoil	Rose Family	**Species Occurrences verified in these Counties:** Beaverhead, Judith Basin, and Valley **State Rank Reason:** Rare in Montana, where it is known from several collections, particularly from Beaverhead County.						

Irreversible and Irretrievable Commitments of Resources: Loss of vegetation along the pipeline route should be temporary, so there would be no irreversible or irretrievable impacts to vegetation. FWP would commit to a reclamation plan that would return the disturbed areas to their previous condition as recreational land and road right-of-way.

Cumulative Impacts: Plant communities around Fort Peck are a mix of native and non-native plants. Plant species of concern were identified and would be evaluated for their occurrence along the pipeline route prior to construction. Because the pipeline excavation and trenching would be regraded and revegetated, the surface disturbance and changes to the vegetation would not represent a long-term change to the overall vegetative community of the area and no measurable cumulative impacts to the vegetative community would be likely to occur from the project.

3.1.4 Aesthetics and Noise

Existing Environment: Along the proposed pipeline alignment, the entire pipeline would be underground with up to five aboveground valve stations as the only visible components. The proposed pipeline route would parallel Yellowstone Road that has overhead lights and electrical lines. Other visual landmarks in the area are the dam and powerhouse, an electrical substation, multiple transmission lines, the Fort Peck townsite, the Fort Peck Interpretive Center, the current Fish Hatchery, and several other buildings. Valve stations would be constructed of concrete, approximately 5 feet wide by 10 feet long, and less than 5 feet above ground.

Noise is generally defined as unwanted sound, and can be intermittent or continuous, steady or impulsive, stationary or transient. Noise levels heard by humans and animals are dependent on several variables, including distance and ground cover between the source and receiver and atmospheric conditions. Perception of noise is affected by intensity, frequency, pitch, and duration. Noise can influence people by interfering with normal activities or diminishing the quality of the environment.

If a continuously operating piece of equipment is audible at a measureable location, the noise level can be calculated. The specific types and numbers of equipment, i.e., excavators, trucks, and other machines, that would be involved with constructing the pipeline is unknown. Equipment noise would vary considerably depending on age, condition, manufacturer, use during a time period, changing distance, and whether a direct line of sight is available between the equipment and a listener location. Often the back-up alarms cause high levels of annoyance and numerous complaints because of their intermittent, high-pitched, impulsive sound. Federal regulations require backup alarms to be audible above the surrounding background noise level behind the equipment, but do not specify a particular noise level (Mine Safety and Health [MSHA] 2008).

Potential Impacts: After installation, the proposed water supply pipeline would have minor to no impacts on aesthetics and noise. During construction, when the ground is disturbed and there would be soil and subsoil stockpiles, pipe and other materials in

storage yards, there would be minor impacts that could be deemed unattractive when compared to the naturally setting. After the pipeline construction areas were graded, soil and subsoil piles backfilled into the trench, and the disturbed areas revegetated, the aesthetics should return to pre-construction levels.

Potential noise impacts would occur during the pipeline construction because the route would be close (within approximately 200 feet) to Fort Peck residences on East Kansas Avenue when working in the area along Yellowstone Road, near the Winter Harbor Road intersection. Without knowing construction specifics, the length of construction is unknown but would be completed in one construction season. Depending on the time of year of the construction work, the Fort Peck Downstream Campground and Recreation Area could have campers and recreational users and some campsites would be within 100 feet of the construction activities.

Potential impacts from noise would continue throughout construction, and the work areas would move because of the linear nature of the pipeline route. Levels of construction noise would likely be below levels required to be protective of human health. A primary noise impact would be expected from back-up alarms. Potential impacts to aesthetic resources would be minor during construction and very minor after construction as only small aboveground valve stations would remain.

Mitigation Measures:

- Require site construction operating plans stipulating the hours of operations for construction and other project activities.
- Limit operations on Saturdays and Sundays to maintenance and support, and prohibit all operations on Holidays.
- Provide alternate vehicle and pedestrian accesses to the Fort Peck Downstream Campground and Recreation Area and Fort Peck Interpretive Center when the construction required the closure of the main entrances.
- Replace standard back-up alarms with MSHA-approved, manually adjustable, ambient-sensitive, directional sound technology, or strobe light alarms. Adjustable and ambient-sensitive alarms typically limit the alarm noise to 5 to 10 A-weighted decibels (dBA) above the background noise that would still typically be audible behind the equipment.
- Install high-grade mufflers on all diesel-powered equipment.
- Enclose all pumps or other noise producing equipment in appropriate noise containment apparatus.
- Backfill the pipe trench, apply topsoil, and reseed the disturbed areas promptly after construction.

Irreversible and Irretrievable Commitments of Resources: Once the construction disturbances are reclaimed, any impacts to aesthetic resources would be short-lived and would not represent an irreversible or irretrievable commitment of resources. Impacts from noise would only last as long as the construction period and would not represent an irreversible or irretrievable commitment of resources.

Cumulative Impacts: Aesthetic character of the area would not be impacted by the pipeline when combined with other aesthetic changes caused by the Downstream Campground, open fields, dam and powerhouse, small industrial areas, and the Fort Peck townsite. The project would not contribute to cumulative impacts to aesthetic resources in the area because the disturbed pipeline area would be reclaimed to pre-construction conditions.

Cumulative effects include noise from the pipeline construction, noise from the powerhouse, noise from traffic, and noise from the area residential and agricultural activities.

3.1.5 Air Quality

Existing Environment: Air quality in Valley County is in attainment with state and federal ambient air quality standards that were set at levels that would protect public health and welfare, http://deq.mt.gov/Air/airquality/Planning/AirNonattainment. Historical use of nearby agricultural lands including the use of plows, discs, drills, swathers, combines, balers, and other implements have contributed to dusty conditions in the area during the summer. Agricultural activities are exempt from the requirements to control or reduce air emissions created by these activities. Residential heating with wood in the Fort Peck townsite could contribute to the overall PM2.5 mass in the local airshed during the winter months. The construction phase of this project would not be during winter months.

Potential Impacts: Air quality in the area would be degraded slightly during construction by additional truck and vehicle emissions, construction equipment emissions, and increased dust from wind erosion on disturbed areas. Fugitive dust would be generated from disturbance to the surface soils in the material laydown areas, other storage areas, and the exposed pipeline trench. Fugitive dust would be generated from construction traffic on the temporary construction roads.

Mitigation Measures:

- Use water spray for the laydown and storage areas and on temporary construction roads to control dust.
- Discontinue major construction activities that create soil disturbances on very windy days (sustained wind speeds greater than 30 miles per hour.
- Backfill the pipe trench, apply topsoil, and reseed the disturbed areas promptly after finishing construction.

Irreversible and Irretrievable Commitments of Resources: None

Cumulative Impacts: Particulate emissions are the primary air pollutant of concern due to their effect on respiratory health in high risk individuals. Existing sources of particulate matter include vehicle emissions from local and recreational traffic, agricultural operations, unpaved roads, an undefined number of wood stoves (but not likely during construction), and smoke from forest fires.

3.1.6 Unique, Endangered, Fragile, or Limited Environmental Resources

Existing Environment: The area surrounding Fort Peck Dam and powerhouse provides multiple land-use opportunities but is managed primarily for energy generation, flood protection, and recreation. Endangered, Threatened, Proposed, and Candidate species that occur in McCone and Valley Counties were listed in Table 3-2. The sturgeon, ferret, tern, and crane are endangered species that could use the Fort Peck project area, but may not specifically use the proposed pipeline area.

Potential Impacts: Impacts to the tern and crane would be very minor and only during construction when there could be noise and other activities that cause some disturbance to their daily functions and routines. Trees and water bodies, including the Missouri River in the Downstream Recreation Area, would not be impacted by the pipeline project and would continue to provide valuable habitat for the unique and endangered species and other species. A field inspection and survey by a trained and experienced biologist would be completed prior to any construction to identify potential use of the area habitats by unique, endangered, fragile, or limited species.

Mitigation Measures:

- Conduct a survey to determine the use and range of any unique, endangered, fragile, or limited species.
- Reclaim all disturbed areas according to the excavation and reclamation plan as soon as construction has finished.

Irreversible and Irretrievable Commitments of Resources: No irreversible or irretrievable impacts to unique, endangered, fragile, or limited environmental resources would be anticipated from this project.

Cumulative Impacts: The project would not contribute to cumulative impacts to unique, endangered, fragile, or limited environmental resources in the area.

3.1.7 Demands on Environmental Resources of Land, Water, Air, and Energy

Existing Environment: Alignment of the proposed pipeline route would traverse Sections 8, 9, 15, and 16 in Township 26 North, Range 41 East. Use of this pipeline route from the powerhouse to the Fish Hatchery would require a FWP to secure a long-term easement. There would be a commitment of 9 cfs of water for the Fish Hatchery that would be diverted from the penstock drain prior to the water running through the hydroelectric power plant.

Potential Impacts: There would be a commitment of land for the pipeline right-of-way through a long-term easement. The 9 cfs of water would be diverted prior to electrical generation, so there would be a minor loss of electricity generation. The 9 cfs is a very small amount of the annual flow through the powerplant and flows through the Fort Peck Dam could be increased to compensate for the small amount of diverted water. The volume of water withdrawn, used, and returned to the Missouri River system by the Proposed Action, compared to the No Action, would be slightly more if the hatchery operates at a higher capacity. Only the point of withdrawal for that water would change. The volume of water lost through evaporation or consumed by the fish hatchery would not change for the Proposed Action compared to the No Action Alternative.

Current Fish Hatchery operations pump the hatchery process water from a failing gravel bed filter in Dredge Cuts pond. Use of the existing filter bed has high pumping costs and the process water contains silts and clays that require additional filtering that adds operational costs. Water from the Dredge Cuts pond has fairly large fluctuations in temperature between summer and winter that requires additional heating costs during the winter compared to the Proposed Action. The Proposed Action would obtain water year-round from the Fort Peck Dam pool that only fluctuates about 16 degrees Fahrenheit (^{o}F) from 39^{o} F in the winter to 55^{o} F in the summer. Current energy demand at the Fish Hatchery for process water pumping is approximately 38,000 kilowatt hours (kWh) per month for just the hatchery building. During the 3 month period when the outdoor rearing ponds are in use, total energy demand for the hatchery building and outdoor pond pumping increases to approximately 49,000 kWh per month. After converting to a gravity-fed water supply system, the total energy demand for the hatchery building would be estimated at less than 10,000 kWh per month to operate the lights, heating, air conditioning, hatchery control systems, and other electrical systems. During the outdoor pond rearing periods, total energy demand for the hatchery would likely be less than 21,000 kWh per month. These numbers suggest a significant reduction in total energy demand for the hatchery after conversion to a gravity process water system.

During construction, there would be additional energy costs for the construction activities, the manufacturing of the pipe, valves and associated materials, and the delivery of construction materials to Fort Peck.

Mitigation Measures:

- Provide the USACE with actual and planned Fish Hatchery water demands at regular schedules so the USACE can either compensate or make up for the diverted flow volumes (average approximately 9 cfs).

Irreversible and Irretrievable Commitments of Resources: The commitment of land for the pipeline right-of-way easement, and the diversion of approximately 9 cfs of

water to the Fish Hatchery would be long-term commitments, but not necessarily irreversible or irretrievable impacts to that land or water.

Cumulative Impacts: Providing a long-term pipeline right-of-way easement to FWP for the Fish Hatchery would impact or limit USACE from using that land for other pipelines or other subsurface uses.

3.1.8 Historical and Archaeological Sites

Existing Environment: Alignment of the proposed pipeline route would traverse Sections 8, 9, 15, and 16 in Township 26 North, Range 41 East. Most of the route (1.75 miles) is in Valley County, but the powerhouse and the first approximately 0.75 miles of the pipeline are in McCone County. According to records in the SHPO State Antiquities Database, there are recorded sites in Sections 9, 15, and 16, but not in Section 8 (Montana State Antiquities Database 2016).

Potential Impacts: The proposed pipeline route crosses land managed by the USACE and the area has been inventoried. The recorded sites are known to occur in specific sections of land, but the individual sites are not publically available. The proposed pipeline route is mostly across previously disturbed areas and along the existing Yellowstone Road so the chance of the pipeline route crossing an individual historic or archaeological site is remote. Prior to determining a confirmed route for the pipeline, a Historian or Cultural Resource Specialist would check the individual recorded sites and ensure the proposed route does not impact any sites.

If historic or fossil remains were discovered during the excavation and trenching work, the SHPO would be contacted and the site investigated.

Mitigation Measures:

- Keep the surface disturbance, equipment operation and storage of materials or equipment within the 50-feet wide pipeline route corridor that will be screened for historic and cultural resources.

Irreversible and Irretrievable Commitments of Resources: If currently unknown historic or cultural resources were not recognized prior to disturbance, an irreversible and irretrievable loss of the resource could occur. Construction activities would be stopped promptly if any historic or cultural resources were found.

Cumulative Impacts: No cumulative impacts would be expected.

3.2 HUMAN ENVIRONMENT AREAS, POTENTIAL IMPACTS, AND MITIGATION MEASURES

During the preliminary analysis of the resource areas that could be affected by the implementation of the two alternatives, 12 human environment resource areas were identified to have potential impacts from the construction and installation of the proposed Fort Peck Fish Hatchery water supply pipeline project. Only the resource areas that would have some adverse or beneficial impact from the Proposed Action are

discussed below. Potential impacts from project construction and implementation are presented along with any mitigations that may lessen impacts, the irreversible and irretrievable commitment of the resource, and the cumulative and secondary impacts for the project are presented. Table 3-4 has a summary of the potential impact rating for the Human Environment resource areas.

3.2.1 Social Structures and Mores

There would be no impacts to the social structures and mores by implementing the Proposed Action.

3.2.2 Local and State Tax Base and Tax Revenue

Existing Environment: Currently, the local tax base and tax revenue includes the jobs and local services associated with the operation of the Fort Peck Fish Hatchery. Currently, the existing hatchery is operating below design capacity because of issues with the water supply filter bed system. The Fort Peck Fish Hatchery currently has 4 full-time staff and 0 part-time staff.

Potential Impacts: Implementation of the Proposed Action would provide short-term benefits to the local and state tax base and tax revenue by providing local jobs, wages and services associated with the construction. The Proposed Action would provide long-term benefits by providing a dependable and good quality supply of process water for the hatchery so it could operate at its design capacity. Operation at design capacity would maintain jobs, pay wages to the employees and maintain service industry jobs in the area.

Irreversible and Irretrievable Commitments of Resources: Fort Peck Fish Hatchery was constructed to support and maintain the sport fishing resources across Montana. Continued operation of this hatchery is planned for 40 to 50 years until the service life of the existing facilities ends. There is a long-term commitment of jobs, wages and services that would support local and state taxes for this facility.

Cumulative Impacts: No cumulative impacts would be expected.

3.2.3 Agricultural or Industrial Production

There would be no impacts to the agricultural or industrial production by implementing the Proposed Action.

3.2.4 Human Health

Existing Environment: Operation and maintenance of the current water supply system at the Fort Peck Hatchery relies on staff to oversee the pumps and filter system in the Dredge Cuts pond to supply the needed water for the hatchery. There are inherent risks and potential injuries from mechanical and physical dangers with their jobs at the hatchery.

Table 3-4: Potential Impact to Human Environment Resource Areas

Resource Area	Major	Moderate	Minor	None	Description
1. Social structures and mores				**X**	No impacts.
2. Local and state tax base and tax revenue			**X**		The Proposed Action (during construction) would provide short-term benefits to the local and state tax base and tax revenue by providing local jobs, wages and services associated with the construction activities. Long-term benefits from a dependable and good quality supply of process water for the hatchery would be operating the hatchery at its design capacity and maintaining hatchery jobs, wages, and service industry jobs in the local region.
3. Agricultural or industrial production				**X**	No impacts.
4. Human health			**X**		The Proposed Action (during construction) could expose workers to unsafe conditions.
5. Quantity and distribution of community and personal income			**X**		The Proposed Action (during construction) would provide short-term benefits by providing local jobs, wages and construction services. Long-term benefits to the community and personal income would be from operating the hatchery at its design capacity and maintaining hatchery jobs, wages, and service industry jobs in the local region.
6. Access to and quality of recreational and wilderness activities			**X**		The Proposed Action (during construction) could temporarily impair the access and quality of recreation and camping at Fort Peck. The Proposed Action would have a beneficial long-term effect on recreation by helping maintain the operations of the fish hatchery and continued stocking of fish in Montana waters that promotes recreational activities.

Table 3-4: Potential Impact On The Human Environment Resource Areas (Cont.)

Resource Area	Major	Moderate	Minor	None	Description
7. Quantity and distribution of employment			**X**		The Proposed Action would have a beneficial effect by continued hatchery operations and jobs.
8. Distribution and density of population and housing			**X**		The Proposed Action would have a beneficial effect on local population and housing by maintaining the operations of the Fish Hatchery.
9. Demands for government services			**X**		The Proposed Action would have a minor impact on demand for government services. There would be a slight decrease in FWP services to maintain the current failing pumps, but possibly a slight increase in USACE services to maintain the water diversion infrastructure from the penstock drains.
10. Industrial and commercial activity			**X**		The Proposed Action would have a beneficial effect on local industry and commercial activity by maintaining the fish hatchery employees and their local purchases and spending.
11. Demands for energy			**X**		The Proposed Action would have a beneficial effect reducing overall energy demand and costs by changing to a gravity-fed water supply.
12. Traffic networks and traffic flows			**X**		During construction, there would be impacts from increased traffic and there would be some traffic delays. After construction, there should be no change to traffic and traffic flows from the Proposed Action.

Potential Impacts: Construction of the Proposed Action would eliminate some operational tasks associated with obtaining water for the hatchery building and raceways from the Dredge Cuts pond; this would result in long-term benefits to their jobs. A gravity-fed water supply would also eliminate the need for pumping the hatchery building and raceways water from the Dredge Cuts pond and provide a safer process for providing the hatchery water.

During construction of the pipeline there would be short-term potential adverse impacts to human health from the additional construction-related jobs. These jobs can be made safer by hiring skilled and experienced workers and providing the on-the-job training for all construction workers.

Irreversible and Irretrievable Commitments of Resources: No irreversible and irretrievable commitment of resources would be expected.

Cumulative Impacts: No cumulative impacts would be expected.

3.2.5 Quantity and Distribution of Community and Personal Income

Existing Environment: Current Fort Peck Fish Hatchery jobs and associated money spent in the community are important to the regional economy. The existing hatchery operations are not functioning at capacity because of issues with the water supply filter bed system. Fort Peck Fish Hatchery currently has 4 full-time staff and 0 part-time staff.

Potential Impacts: Implementation of the Proposed Action would provide short-term benefits to the community and personal income by providing additional jobs during construction. Completion of the Proposed Action would provide long-term benefits to the community and personal income by providing a dependable and good quality supply of hatchery process water so the hatchery could operate at its design capacity and continue to employ personnel.

Irreversible and Irretrievable Commitments of Resources: The Fort Peck Fish Hatchery has been built and should continue to operate. Therefore, there is a long-term commitment to the community to provide jobs to operate the facility.

Cumulative Impacts: No cumulative impacts would be expected.

3.2.6 Access to and Quality of Recreational and Wilderness Activities

Existing Environment: Alignment of the proposed pipeline route would parallel the well-used Yellowstone Road for most of the distance and run along the southern edge of the Fort Peck Downstream Campground. The Downstream Campground and Recreation Area is a very important component for recreational users at Fort Peck.

Potential Impacts: The Proposed Action would result in minor access disruptions to the Downstream Campground and Recreation Area entrances from the pipeline construction at specific locations. The additional noise from the pipeline construction activities (see Section 3.1.5) could impact the quality of the recreation and camping experience during the active construction periods.

Irreversible and Irretrievable Commitments of Resources: There would be no irreversible or irretrievable commitments for this resource area.

Cumulative Impacts: No cumulative impacts would be expected.

3.2.7 Quantity and Distribution of Employment

Existing Environment: Fort Peck Fish Hatchery currently employs 4 full-time staff and 0 part-time staff. Existing hatchery operations are not functioning at design capacity because of issues with the water supply filter bed system. This level of operation may be limiting the number of employees at the hatchery.

Potential Impacts: Implementation of the Proposed Action would provide short-term benefits to the local economy by providing additional jobs during pipeline construction. The Proposed Action would also provide long-term benefits to the Fort Peck and Glasgow areas by providing a dependable and good quality supply of hatchery process water so the hatchery could operate at its design capacity and continue to employ personnel. Maintaining the production of fish at the Fort Peck Hatchery for stocking Montana reservoirs and streams would benefit Montana's recreational economy.

Irreversible and Irretrievable Commitments of Resources: The Fort Peck Fish Hatchery has been built and should continue to operate as a hatchery. Therefore, there is a long-term commitment to the Fort Peck and Glasgow communities to provide jobs to operate the Hatchery.

Cumulative Impacts: No cumulative impacts would be expected.

3.2.8 Distribution and Density of Population and Housing

There would be no impacts to the distribution and density of population and housing by implementing the Proposed Action.

3.2.9 Demands for Government Services

Existing Environment: Fort Peck Fish Hatchery is a FWP-operated facility on USACE land. Current demand for government services for the Hatchery operations are primarily for FWP jobs and other associated operating contracts and costs. The Hatchery has only a small demand for government services from USACE.

Potential Impacts: Implementation of the Proposed Action would create a short-term demand for additional USACE services for engineering design and construction of the infrastructure in the Fort Peck powerhouse to provide a water supply pipeline from the penstock drains to outside the powerhouse. The Proposed Action would create a minor long-term demand from FWP and USACE to coordinate operations and maintenance schedules for the powerhouse and hatchery to minimize or eliminate any interruptions to the water supply.

Irreversible and Irretrievable Commitments of Resources: The Proposed Action would result in an irretrievable commitment of materials and construction costs to install the pipeline. The commitment of resources is not considered irreversible because the Hatchery could switch to another water supply and abandoned the pipeline in the future.

Cumulative Impacts: Demand for additional USACE government services to design and construct the powerhouse infrastructure components of the pipeline could result in a cumulative demand when added to their current projects and workloads.

3.2.10 Industrial and Commercial Activity

Existing Environment: Current Fort Peck Fish Hatchery operations may occasionally contract work from commercial suppliers but most of the hatchery operation activities are done by FWP personnel.

Potential Impacts: During construction, the Proposed Action would require contracts with industrial and commercial suppliers to provide the equipment, laborers, and supplies to complete the water supply pipeline and associated valves and gauges. After construction, the need for commercial suppliers would be similar to the current levels.

Irreversible and Irretrievable Commitments of Resources: There would be no irreversible or irretrievable commitment of resources for industrial and commercial companies for the Proposed Action.

Cumulative Impacts: No cumulative impacts would be expected.

3.2.11 Demands for Energy

Existing Environment: The current failing gravel bed filter system for the Hatchery water supply requires pumping approximately 2 cfs of lake water that contains silt and clay sediment, filtering the water, and heating the water. These necessary water treatment preparatory steps use electricity and natural gas.

Potential Impacts: Implementation of the Proposed Action would provide a gravity-fed supply of up to 9 cfs of water from the Fort Peck Dam penstock drains. This water would not require any pumping and would contain less sediment and have a more consistent temperature throughout the year. There would be a benefit to energy demand (less energy used) because of the gravity-fed supply, less filtering of sediments, and likely less heating of the water due to the more consistent temperature of the supply water. The 9 cfs of water would be diverted prior to electrical generation, so there would be a minor loss of electricity generation.

There would be some additional energy demands during construction for the excavation and construction, truck supplies to Fort Peck, and other fuel used during the pipeline construction.

Irreversible and Irretrievable Commitments of Resources: The commitment to divert up to 9 cfs of water to the Fish Hatchery is a long-term commitment, but not necessarily irreversible or irretrievable because the Hatchery could find a different water supply and the pipeline would not be needed. Additionally, almost all the process water that flows through the hatchery would be returned to the Missouri River.

Cumulative Impacts: No cumulative impacts would be expected.

3.2.12 Traffic Networks and Traffic Flows

Existing Environment: Fort Peck traffic comes from FWP and USACE workers, residents, and the recreating and visiting public. Year-round traffic is low to medium-low most times of the day and night. During the weekends and at other high recreational user times, the traffic would be considered medium to high.

Potential Impacts: During construction, there would be increased traffic and impacts to traffic flows would be noticeable. The proposed pipeline route would parallel Yellowstone Road and there would be need for some traffic delays during construction. After construction, the traffic and traffic flows would likely be similar to current levels.

Irreversible and Irretrievable Commitments of Resources: There would be no irreversible and irretrievable changes to traffic and traffic flows from implementing the Proposed Action.

Cumulative Impacts: No cumulative impacts would be expected.

3.3 PUBLIC INVOLVEMENT, AGENCIES, GROUPS OR INDIVIDUALS CONTACTED

Valley County Commission
McCone County Commission
US Army Corps of Engineers
Montana State Historical Preservation Office
Resident notification letters sent to homeowners within 1,000 feet of proposed pipeline route
Montana Natural Heritage Program
Montana Department of Environmental Quality

4.0 CONCLUSION OR RECOMMENDATION FOR FURTHER ENVIRONMENTAL ANALYSIS

The Proposed Action to provide an alternative water source for the Fort Peck Hatchery by installing a pipeline from the Fort Peck Dam powerhouse to provide gravity-fed reservoir water to the hatchery would be protective of the human and physical environment. An EA is an adequate document to address potential impacts of this new water supply for the hatchery.

Included in this EA was an evaluation and assessment of impacts to 9 physical environment resource areas and 12 human environment resource areas. A summary of these evaluations and assessments are provided below.

The evaluation and assessment of the physical environment resources revealed eight of the nine areas would have only minor impacts from the implementation of the Proposed Action. The remaining physical environment resource area would have no impacts from the implementation of the Proposed Action. Design details and construction methodologies identified for implementation of the Proposed Action would be developed to minimize the impacts to the physical environment resource areas.

The Proposed Action project area could be used by six species on the US Fish and Wildlife Services' Endangered, Threatened, Proposed and Candidate list. The EA included an assessment of potential impacts from the Proposed Action on these species and concluded that any impacts would be minor and short-term and only occur during the construction phase.

The evaluation and assessment of the human environment resource areas revealed 9 of the 12 areas would only have minor impacts from implementation of the Proposed Action. The remaining three physical environment resource areas would have no impacts from the Proposed Action. Overall, the implementation of the Proposed Action would be beneficial to the local economy in the short-term from the additional construction jobs, and beneficial to the economy in the long-term from the additional recreation dollars spent on sport fishing throughout Montana.

Based on the evaluation and assessment of the physical and human environment resource areas, implementation of the Proposed Action would result in only minor adverse impacts to some resource areas during construction. The Proposed Action would result in major short- and long-term benefits by providing a dependable supply of quality gravity-fed water for long-term hatchery operations that ultimately provides benefits to fishing and related outdoor recreational activities across Montana.

List of Preparers

Montana Fish, Wildlife and Parks		
Jason Senn, P.E.	Project Manager, Civil Engineer Specialist	B.S., Civil Engineering
Paul Valle, L.A.	Design and Construction Supervisor	B.S., Landscape Architecture
Eileen Ryce, Ph.D.	Hatchery Bureau Chief	Ph.D., Fish and Wildlife Biology
Wade Geraets	Fish Hatchery Manager	B.S., Wildlife and Fisheries Sciences B.S., Biology
Matt Baxter	Fish Culture Specialist	B.A., Zoology
BJ Erickson	Fish Culture Specialist	B.S., Agricultural Business
Ryan Lott	Fish Culture Specialist	B.S., Fish and Wildlife Management
Montana Department of Environmental Quality		
David LeMieux	Energy Engineer	M.S., System Energy Engineering B.S., Electrical Engineering
Tetra Tech		
J. Edward Surbrugg, Ph.D.	Project Manager, Biological and Physical Resources	Ph.D., Soil Science M.S., Land Rehabilitation B.S., Range Ecology
Tom Bumstead, P.E.	Fisheries Engineer	M.S., Civil Engineering B.S., Fish and Wildlife Management
Lynn Peterson	Cultural and Historic Resources	M.S., Anthropology B.A., Anthropology
Jim Dushin	Graphics	B.S., Wildlife Biology B.A., Forestry
Steve MacNeill	Biological Resources	B.S., Soil and Water Science
Mark Stiffler	Biological Resources	B.S., Biological Science M.E.P.C., Environmental Pollution Control
Colin McCoy, P.E.	Water Resources Engineering	B.S., Biological Systems Engineering
Alane Dallas	Word Processing	High School Diploma
Mike DaSilva	Technical Editing	M.S., Biology B.A., Biology